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CEE, CSA and UL Standard models are not equipped with a Voltage Selector or Cycle Conversion Switch. Therefore, voltage and cycle conversion is not necessary. If your machine corresponds to any of these standards, please disregard all references to voltage and cycle adjustment throughout this manual.

CEE Models: 220 V, 50 Hz.

CSA Models: 120 V, 60 Hz.

UL Models: 120 V, 60 Hz.

1. GENERAL INFORMATION

1- SPECIFICATIONS

Track System	4-track 4-channel/2-channel compatible stereo
Max. Reel Size	7"
Tape Speed	7-1/2 and 3-3/4 ips ($\pm 1\%$)
Wow/Flutter	0.12% RMS at 7-1/2 ips 0.15% RMS at 3-3/4 ips
Frequency Response	30 Hz to 22,000 Hz (± 3 dB at 7-1/2 ips); 30 Hz to 15,000 Hz (± 3 dB at 3-3/4 ips)
S/N Ratio	Better than 50 dB
Distortion	Less than 1.5% (7-1/2 ips) (1,000 Hz "0" VU recording)
Erase Ratio	Better than 70 dB
Equalization	Correct equalization for playback of tapes recorded to NAB curve
Recording Bias Frequency	100 kHz
Recording Level Indicator	2 twin type VU meters
Heads	Two 4-track 4-channel stereo heads for recording and playback. Two erase heads (2-track and full track)
Fast Forward & Rewind	75 seconds at 60 Hz (1,200 ft. tape) 90 seconds at 50 Hz (1,200 ft. tape)
Output Jacks	4 Line Output Jacks Output Level: 1.23 V Max. Load Impedance: more than 20 k Ω
Input Jacks	2 Headphone Jacks (1 ea. front/rear), 8 Ω 4 Mic Input Jacks: 0.4 mV/30 k Ω 4 Line Input Jacks: 40 mV/100 k Ω
DIN Jacks	2 Output/Input DIN Jacks: 0.4 V/5 mV
Recording Capacity	4-channel stereo (30 min. at 7-1/2 ips using a 1,200 ft. tape) 2-channel stereo (1 hr. at 7-1/2 ips using a 1,200 ft. tape)
Motor	Hysteresis synchronous 2-speed motor
Semi-Conductors	19 Transistors; 6 Diodes
Integrated Circuits	8 Linear IC
Power Supply	AC 100 to 240 V; 50/60 Hz
Power Consumption	50 W
Dimensions	420 (W) x 450 (H) x 240 (D) mm (16-1/2" x 18" x 9-1/2")
Weight	15 kg (33 lbs.)

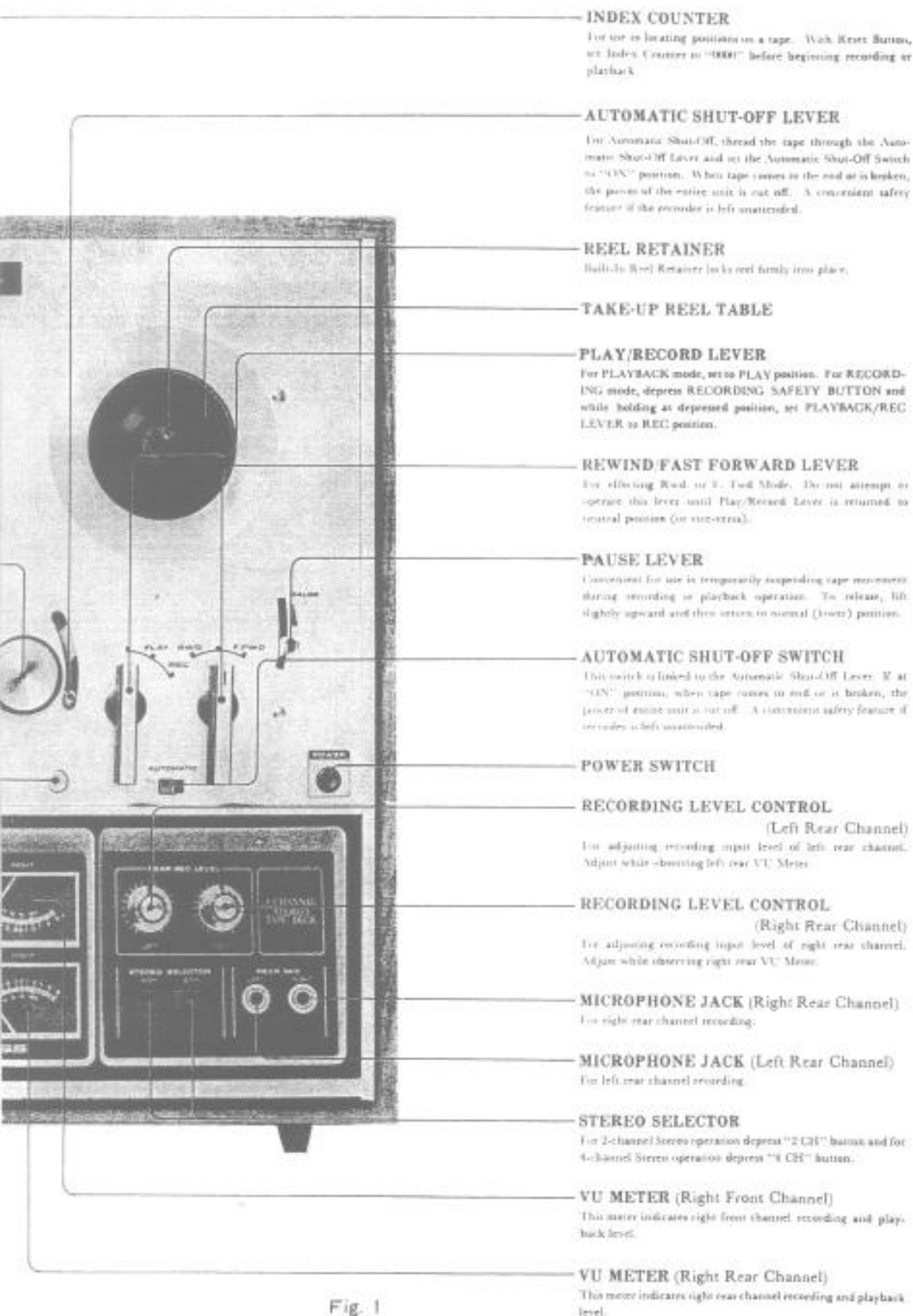


Fig. 1

DIN JACK (Rear Channel)

Enables inter-connection with external stereo amplifier by use of a single DIN connection cord (DR-311 connection cord standard accessory).

LINE OUTPUT JACK (Right Rear Channel)

For playback, connect to Tape Input Jack (right) of external amplifier.

LINE INPUT JACK (Right Rear Channel)

For recording, connect to Output Jack (right) of external recording source.

FUSE POST

VOLTAGE SELECTOR PLUG

In case of necessity to change voltage input, remove fuse post & plug and set plug to proper voltage.

AC CORD

CYCLE CONVERSION SWITCH (B)

This switch and Cycle Conversion Switch (A) on front panel must be set in accordance with area power source. Set both switches to 50 or 60 Hz as required.

LINE OUTPUT JACK (Left Rear Channel)

For playback, connect to Tape Input Jack (left) of external amplifier.

LINE INPUT JACK (Left Rear Channel)

For recording, connect to Output Jack (left) of external recording source.

LINE OUTPUT JACK (Right Front Channel)

For playback, connect to Tape Input Jack (right) of external amplifier.

LINE INPUT JACK (Right Front Channel)

For recording, connect to Output Jack (right) of external recording source.

DIN JACK (Front Channel)

Enables inter-connection with external amplifier by use of a single DIN connection cord (DR-311 connection cord standard accessory).

LINE OUTPUT JACK (Left Front Channel)

For playback, connect to Tape Input Jack (left) of external amplifier.

LINE INPUT JACK (Left Front Channel)

For recording, connect to Output Jack (left) of external recording source.

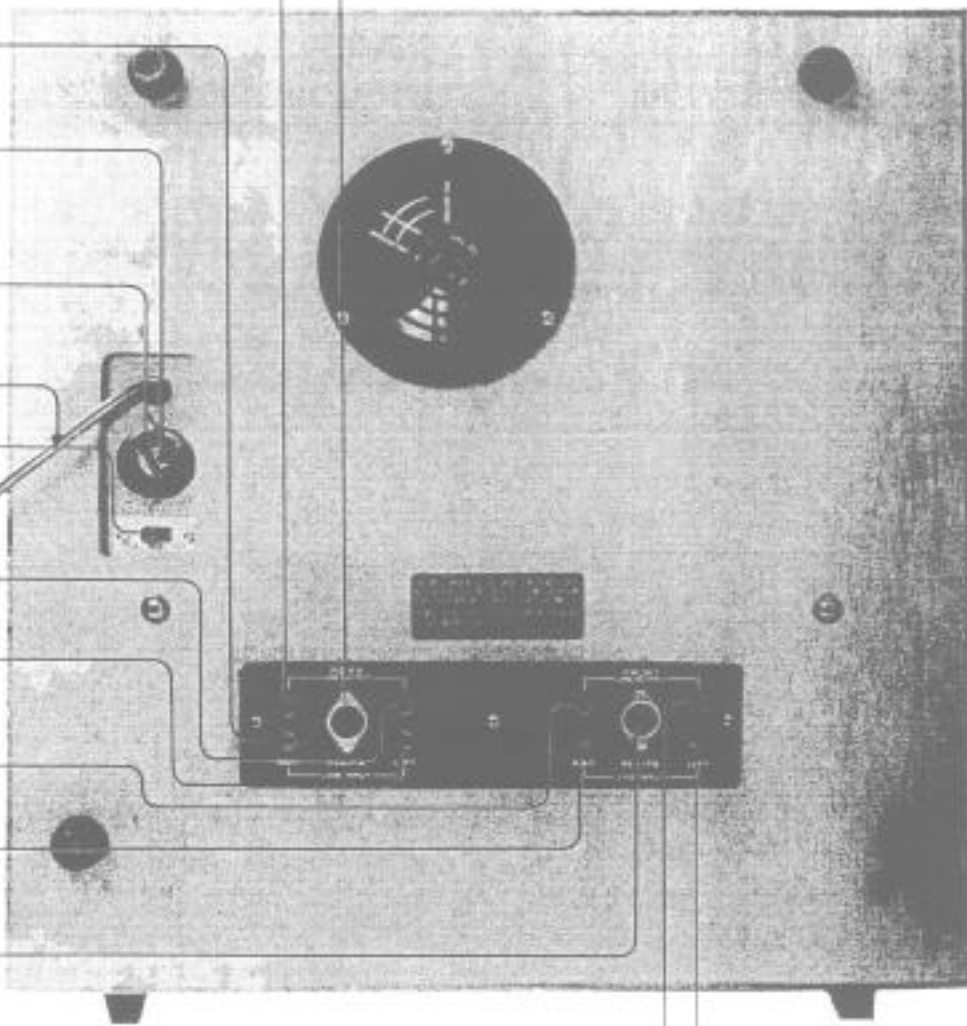


Fig. 2

3- 4-CHANNEL STEREO SYSTEM

■4-CHANNEL STEREO

In the continued pursuance of more aesthetical sound another stereo revolution has taken place... A new stereo "break-through" from 2-channel to 4-channel stereo.

This "move-up" to 4-channel stereo is equally as great an achievement as the advancement from monaural to 2-channel stereo. Just as 2-channel stereo sound reproduction meant the exodus of flat monaural sound, this epoch-making new system eliminates the inability to pick up and reproduce pure concert hall sound. New 4-channel uses 4 signal paths or sound tracks in the program material and in playback approximates the complexity of the sound waves which reach the listener's ear when attending a live concert hall performance.

For playback, 4 speakers are positioned to surround the listener. The sound from the front and rear speakers give the listener an exciting "sense of presence". With the 4 speakers each delivering separate sound, left & right in front and left & right in back of you, you are literally surrounded with a wall of sound which fills the "hole in the middle". This 4-dimensional reproduction makes conventional 2-channel stereo seem empty and insufficient.

■AKAI "SURROUND STEREO"

Exhibitions of AKAI's 4-channel stereo system are already being held in various parts of the world and are being termed by the listeners as "SENSATIONAL". AKAI's surround stereo supplements conventional stereo's 2 front speakers with 2 additional rear speakers to form the "2-2 System". The listener is surrounded by two sets of speakers (left & right front and left & right rear). This arrangement does not mean, however, that simply adding two speakers to a 2-channel system is all that is necessary for 4-channel playback. At recording time, 4 microphones are used and sound is picked up from 4 separate places. Four separate recordings are made using 4 separate channels (all four tracks in one direction). This 4-channel stereo tape feeds into 4 preamplifiers and 4 main amplifiers to activate a 4-speaker system. Thus, at playback time, sounds from separate channels are emitted from each speaker, providing the listener with a feeling that he is listening to concert hall music from the best seat in the auditorium. If you are a jazz fan, for instance, you can record and position the speakers for playback so that the spine-tingling sax sounds are emitted from the left front speaker, drums from right front, piano from left rear, and bass from right rear. This arrangement gives the listener a real "sense of presence", creating an atmosphere in which you have the feeling of being exactly in the middle of the live performance.

II. OPERATING INSTRUCTIONS

1- 4-TRACK RECORDING/ PLAYBACK SYSTEM

The AKAI U730D-SS employs a 4-track system which can be used for either 4-channel or 2-channel stereo recording/playback. Tracks are selected by operating the STEREO TRACK SELECTOR Switches.

4-Channel Stereo Recording/Playback

4-channel stereo recording/playback requires the simultaneous use of all 4 tracks in one direction. Set Stereo Selector to "4-CH". See page 3.

2-Channel Stereo Recording/Playback

2-channel stereo recording/playback requires the simultaneous use of two tracks. Set Stereo Selector to "2-CH" and use front channel controls. The first stereo recording/playback takes place on tracks 1 and 3, and the second on tracks 2 and 4 after the reels have been inverted.

Place a full reel of tape on SUPPLY REEL TABLE and an empty reel on the TAKE-UP REEL TABLE. Thread the tape as illustrated by the dotted line in Fig. 3.

Lock reels into place with REEL RETAINERS provided on reel shafts.

Be sure to thread tape through Automatic Shut-Off Lever.

4-track 4-channel stereo tape

1	→	Front Left CH
2	→	Rear Left CH
3	→	Front Right CH
4	→	Rear Right CH

1	→	Left CH
2	←	Right CH
3	→	Right CH
4	←	Left CH

→ Side A ← Side B

4-track 2-channel stereo tape

2- TAPE LOADING



Fig. 3

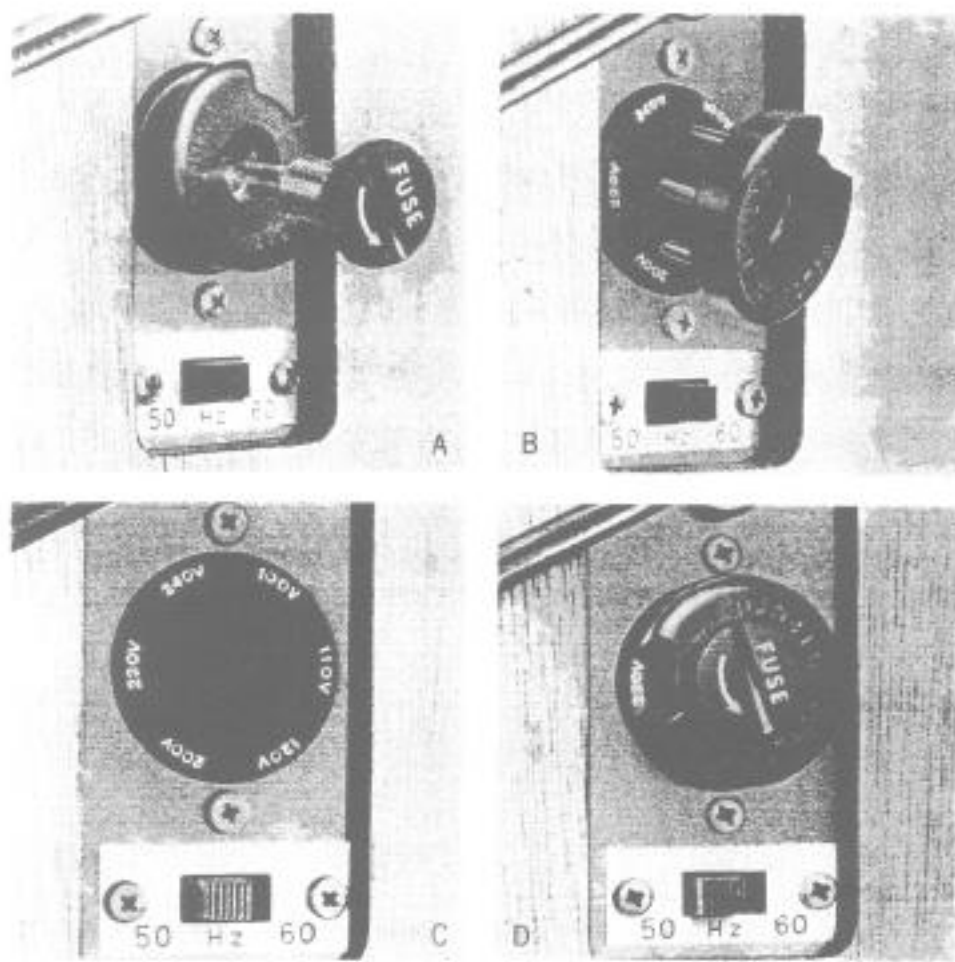


Fig. 4

3- VOLTAGE AND CYCLE CONVERSION

■ VOLTAGE

Model 1730D-SS is operable anywhere in the world. With the built-in step-down power transformer, the operator can easily readjust the recorder to any one of the six stages of power voltage from 100 to 240 volts A. C. The operator is requested to check the previously set voltage before operation. If another voltage is required, readjustment can be made as follows:

- (1) Remove the FUSE POST as shown in Fig. A. Remove VOLTAGE SELECTOR PLUG and reinsert to standard area voltage.
- (2) The VOLTAGE SELECTOR as shown in Figs. B, C, and D is a rotatable plug-in type offering 6 selections (100/110/120/200/220/240).

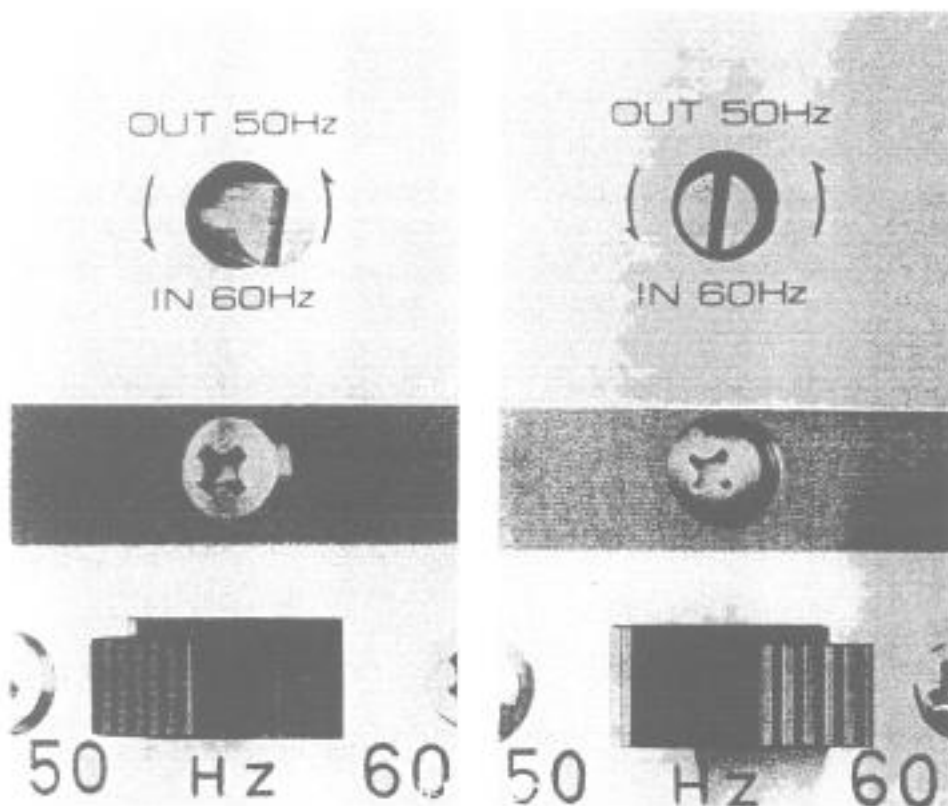


Fig. 5

■ CYCLES

Correct tape speed cannot be obtained if the CYCLE CONVERSION SWITCHES are not properly positioned. CYCLE CONVERSION SWITCH (A) is located on the upper center of the face panel and (B) is located at the rear of the recorder. Using a screw driver, rotate CYCLE CONVERSION SWITCH (A) counter-clockwise approximately one-eighth of a turn. The switch can then be moved either OUT or IN. 50 cycle operation is obtained by moving the switch OUT (Fig. A-1) and 60 cycle operation, by moving the switch IN (Fig. A-2). The switch should be rotated back to its original position after it has been moved to either IN or OUT position. CYCLE CONVERSION SWITCH (B) must also be reset accordingly.

CAUTION: Do not attempt to rotate the CYCLE CONVERSION SWITCHES when the motor is not running.



Fig. 6

4- TAPE SPEED SELECTION

The 1750D-SS Surround Stereo Tape Deck operates on two tape speeds ($3\frac{3}{4}$ and $7\frac{1}{2}$ ips). Equipped with a convenient Tape Speed Selector for quick and convenient speed selection.

RECORDING TIME

Tape Length	TAPE SPEED			
	4-Track 4-Channel		4-Track 2-Channel	
	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)
1,200 ft.	1 hour	0.5	2	1
1,800 ft.	1.5	0.75	3	1.5
2,400 ft.	2	1	4	2

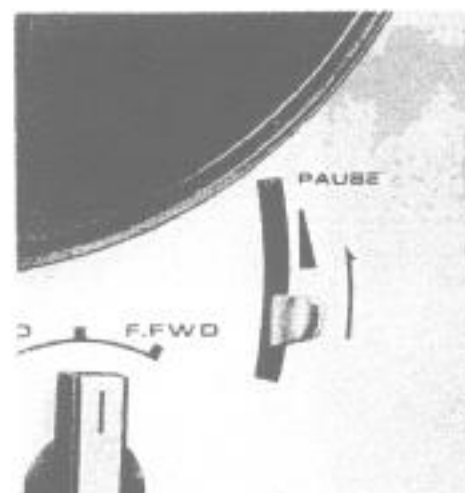


Fig. 7

5- PAUSE CONTROL

To momentarily stop the tape during recording/playback, set the PAUSE LEVER to "Pause" position (as shown in Fig. 7). PAUSE CONTROL will not function during fast forward or rewind operation.

PAUSE CONTROL is useful in editing the tape during recording (lift lever to stop recording when a certain portion of the program is not desired). Note that when the lever is released and recording again commences, no annoying "click" is impressed on the tape.

6- AUTOMATIC SHUT-OFF

One of the exclusive features of Model 1750D-SS is the function of the automatic shut-off unit. If the Automatic Shut-Off Switch is set to "ON" position, when the tape comes to the end or is accidentally broken, the AUTOMATIC SHUT-OFF LEVER drops, cutting off the power of the entire unit.

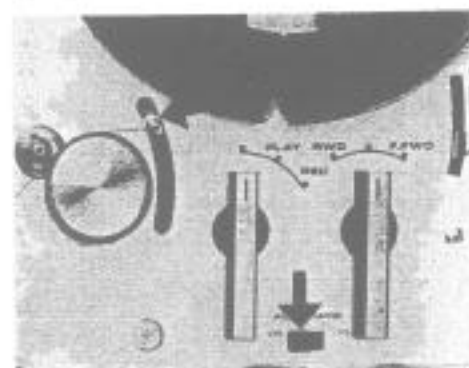


Fig. 8

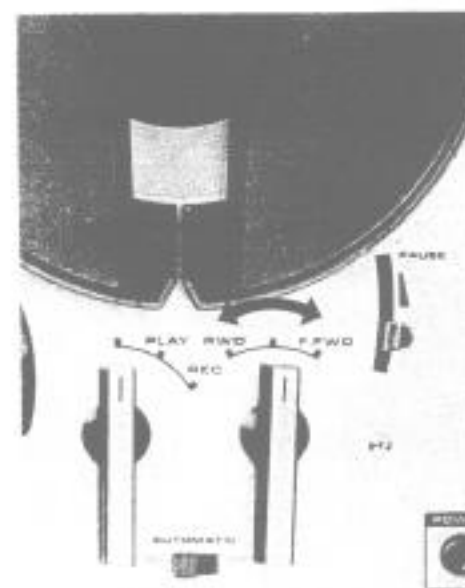


Fig. 9

7- FAST FORWARD AND REWIND

Fast Forward or Rewind is performed by operating FAST FORWARD/REWIND LEVER. Fast Forward or Rewind permits rapid selection of recordings on the tape. FAST FORWARD/REWIND LEVER is automatically locked into position and cannot be operated while PLAYBACK LEVER is in operation and vice-versa.

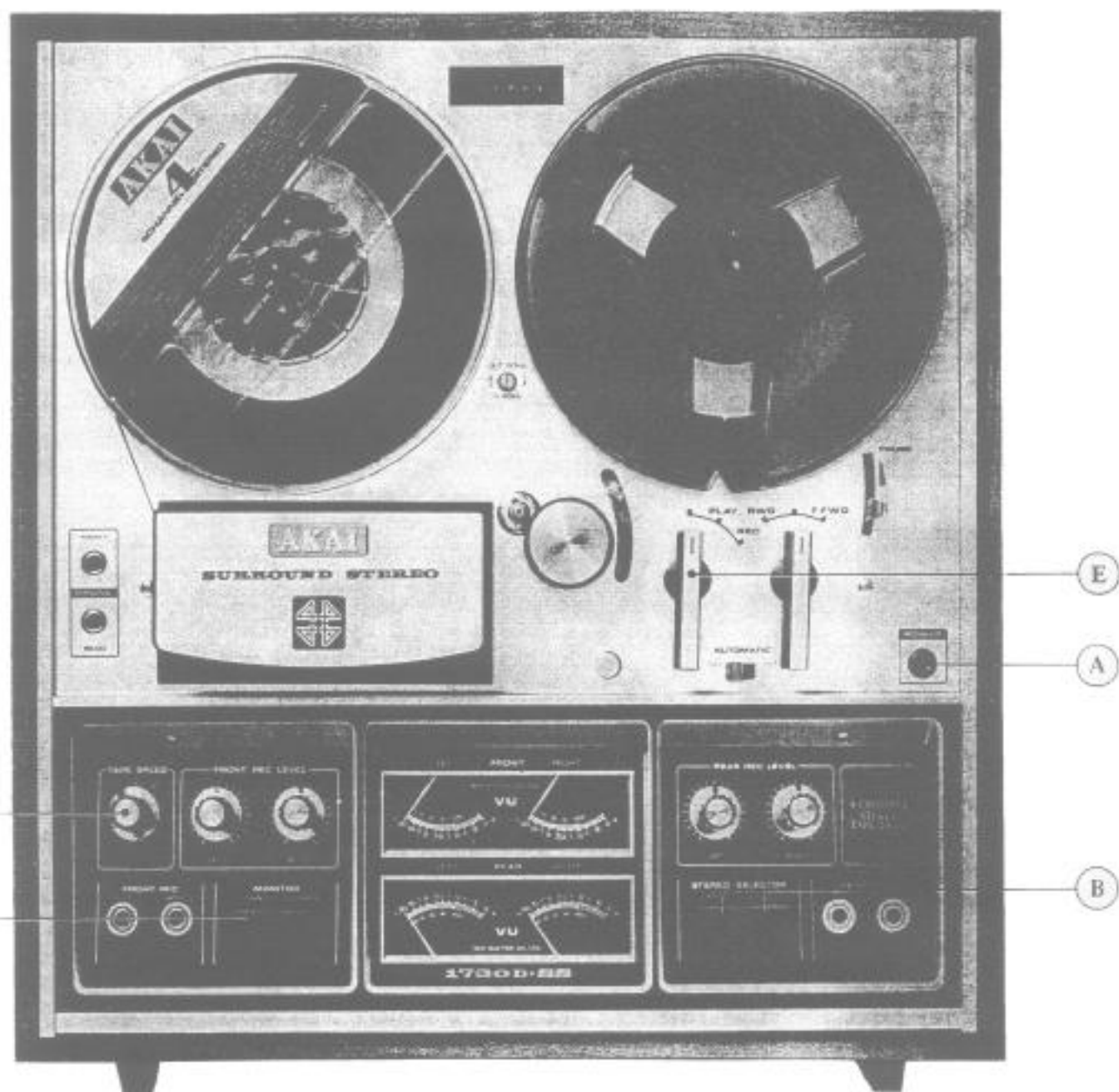


Fig. 10

■ STEREO PLAYBACK

Please be sure to check the following prior to operation:

- * Heads are clean and free of dust.
- * As tape which has not been used for a period of time may have become sticky, run tape once before using.
- * Tape is loaded properly.

■4-CHANNEL SURROUND STEREO PLAYBACK

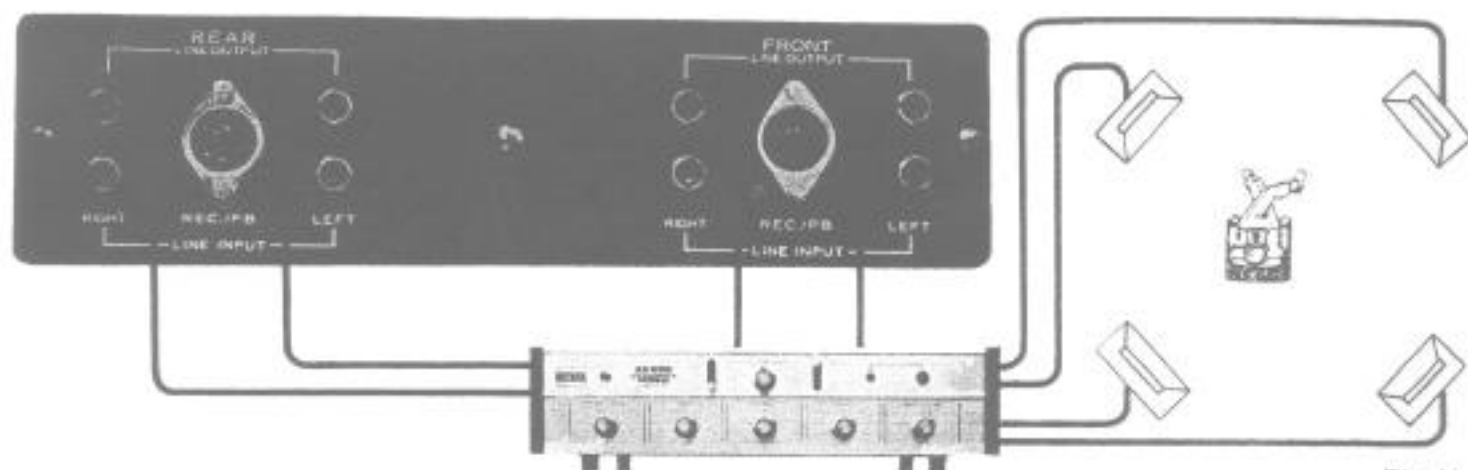


Fig. 11

Model 1730D-SS Tape Deck does not include power amplifiers. It is, therefore, necessary to provide a 4-channel stereo external amplifier and 4 speakers for Surround Stereo playback. Connect FRONT & REAR CHANNEL LINE OUTPUT JACKS to FRONT & REAR CHANNEL TAPE INPUT JACKS of stereo amplifier and connect 4 speakers to the amplifier.

Connect power cord and load a 4-channel pre-recorded tape.

- Ⓐ Turn on POWER SWITCH.
- Ⓑ Depress 4-CH STEREO SELECTOR.
- Ⓒ Select tape speed.
- Ⓓ Depress TAPE MONITOR SWITCH.
- Ⓔ Set PLAYBACK REC LEVER to PLAY and adjust Volume Controls, etc. of external amplifier.

■CONVENTIONAL 2-CHANNEL STEREO PLAYBACK

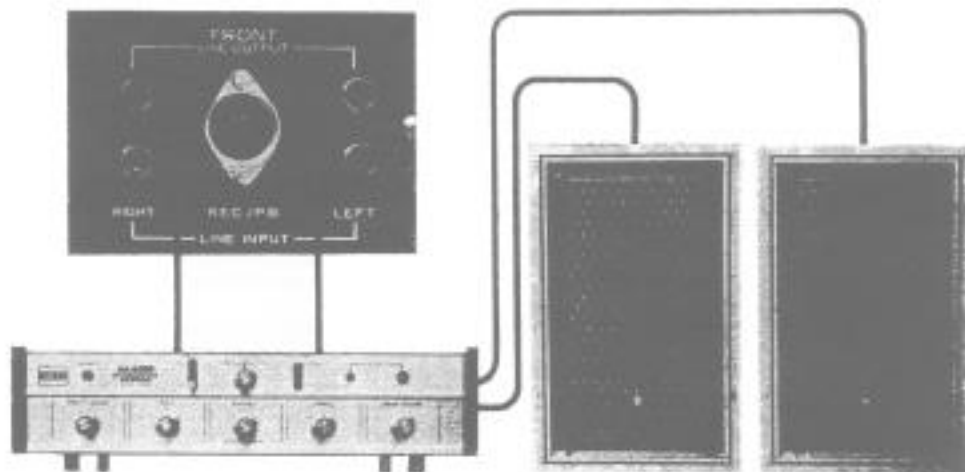


Fig. 12

Model 1730D-SS Tape Deck does not include power amplifiers. It is, therefore, necessary to provide an external amplifier and a pair of speakers for playback. In case a 4-channel amplifier is used utilize only front channel connections.

Connect LINE OUTPUT JACKS of the front channel to TAPE INPUT JACKS of external stereo amplifier and connect a pair of speakers to the amplifier.

Connect power cord and load a 2-channel stereo pre-recorded tape.

- Ⓐ Turn on POWER SWITCH.
- Ⓑ Depress 2-CH STEREO SELECTOR.
- Ⓒ Select tape speed.
- Ⓓ Depress TAPE MONITOR SWITCH.
- Ⓔ Set PLAYBACK REC LEVER to PLAY and adjust Volume Controls, etc. of external amplifier.
- Ⓕ Invert reels for playback on tracks 2-4.

■PLAYBACK USING STEREO HEADPHONES

Two separate front and rear channel stereo Headphone Jacks are provided for your convenience. In case of 2-channel playback, use front channel Headphone Jack only. For private listening, use Stereo Headphones of low impedance type (8Ω). AKAI Model ASE-22 is highly recommended.



Fig. 13

9- RECORDING

Please be sure to check the following prior to operation:

- * Heads are clean and free of dust.
- * Heads are demagnetized.
- * Use good quality tape (new tape gives best results).
- * As tape which has not been used for a period of time may have become sticky, run tape once before using.
- * Tape is loaded properly.



Fig. 14

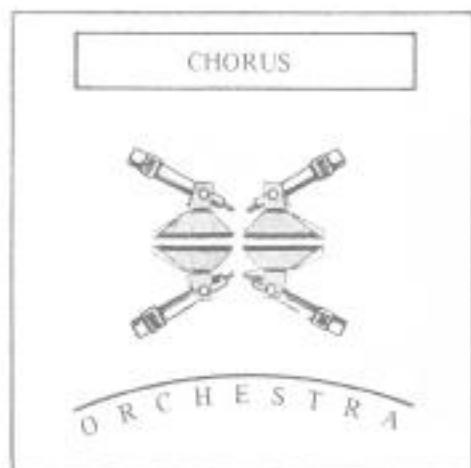
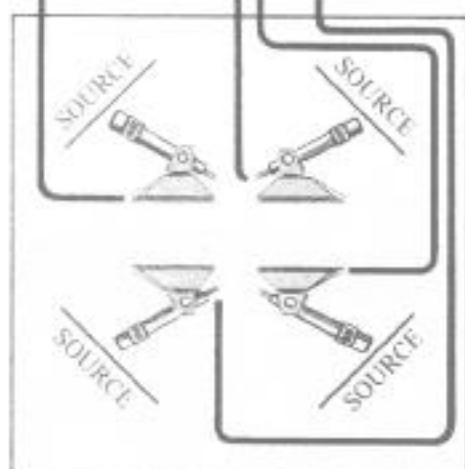


Fig. 15

■ 4-CHANNEL SURROUND STEREO RECORDING

Connect power cord and load a tape.

- ① Turn on POWER SWITCH.
- ② Depress 4-CH STEREO SELECTOR.
- ③ Select tape speed.
- ④ With RESET BUTTON, set INDEX COUNTER to "0000". This Index Counter provides an easy reference for locating positions on the tape.
- ⑤ Insert MICROPHONE PLUGS into MICROPHONE JACKS (front left & right and rear left & right).
- ⑥ Depress SOURCE Monitor Switch.
- ⑦ Set PAUSE LEVER to PAUSE position.
- ⑧ While depressing RECORDING SAFETY BUTTON, set PLAYBACK-REC LEVER to REC position.
- ⑨ Adjust and balance microphone Volume levels by operating corresponding REC LEVEL CONTROLS while observing corresponding VU METERS. Normal recording should not exceed "0" VU on any of the respective VU Meters.
- ⑩ When an optimum recording level has been determined, release PAUSE LEVER to begin recording.
- ⑪ To stop recording, return PLAYBACK REC LEVER to Stop (vertical) position.
- ⑫ In case of using headphones for monitoring recorded signals, depress TAPE MONITOR SWITCH.

■ CONVENTIONAL 2-CHANNEL STEREO RECORDING

For conventional 2-channel stereo recording substitute the following steps for steps ②, ③, ④ of 4-channel stereo recording procedure and add step ⑧.

- ② Depress 2-CH STEREO SELECTOR.
- ③ Insert MICROPHONE PLUGS into MICROPHONE JACKS (front left & right only). Maintain a distance of at least 2 meters (7 ft.) between microphones.
- ④ Adjust and balance microphone volume levels by operating front channel REC LEVEL CONTROLS while observing front channel VU Meters. Normal recording should not exceed "0" VU on VU Meters.
- ⑧ Invert reels for recording on tracks 2-4.



Fig. 16

RECORDING FROM OTHER EXTERNAL SOURCES

4-CHANNEL SURROUND STEREO RECORDING

For 4-channel stereo recording, connect the front & rear channel LINE INPUTS of Model 1730D-SS to the front & rear channel OUTPUTS of your 4-channel external source instead of step 5 of 4-channel stereo recording procedure.

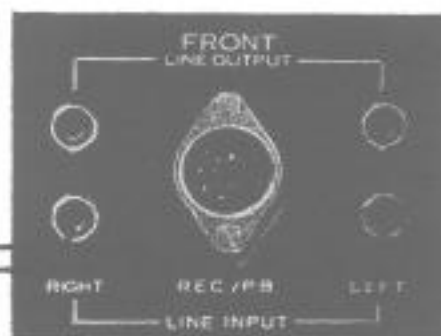


Fig. 17

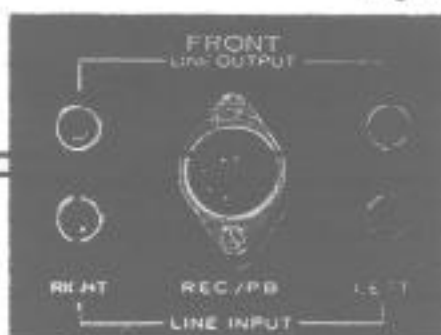
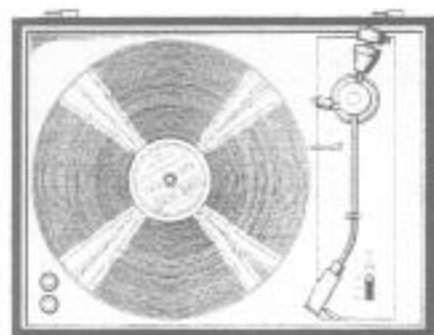


Fig. 18

From Another Tape Recorder

For 4-channel Surround Stereo recording, connect the front and rear LINE OUTPUT JACKS of the playback recorder to the front and rear LINE INPUT JACKS of Model 1730D-SS instead of Step 5 of 4-channel surround stereo recording procedure.

For 2-channel recording, connect the LINE OUTPUT JACKS of the playback machine to the front channel LINE INPUT JACKS of Model 1730D-SS instead of Step 5 of conventional 2-channel stereo recording procedure.



Fig. 20

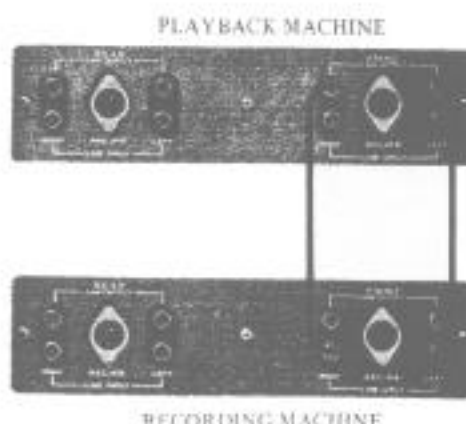


Fig. 19

2-CHANNEL STEREO RECORDING

From an External Amplifier (Fig. 17)

Connect the OUTPUT leads of the external amplifier to the front channel LINE INPUT JACKS instead of Step 5 of conventional 2-channel stereo recording procedure.

From a Record Player (Fig. 18)

A "crystal pick-up" or a "ceramic pick-up" can be connected directly to the front channel LINE INPUT JACKS instead of Step 5 of conventional 2-channel stereo recording procedure. If a "magnetic cartridge" is used, for proper equalization, it must be connected to the Line Input Jacks through an external amplifier.



Fig. 21

DIN JACKS

The DIN JACKS at the rear of the recorder are used for inter-connecting Model 1730D-SS with an external stereo amplifier. This system enables easy recording or playback through an external amplifier as the complex connection or disconnection of several separate plugs is not necessary.

Two AKAI DR-III DIN connection cords have been included in the standard accessories.



Fig. 22

MONITORING

For monitoring or private listening, connect headphones to the Headphone Jack. The program source can be monitored by depressing the SOURCE Switch, and the recorded signals can be monitored by depressing the TAPE Switch. AKAI 8Ω impedance Stereo Headphones ASE-22, ASE-20 and ASE-9S are highly recommended.

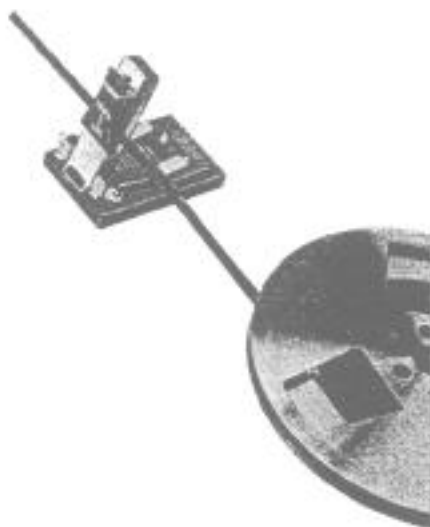
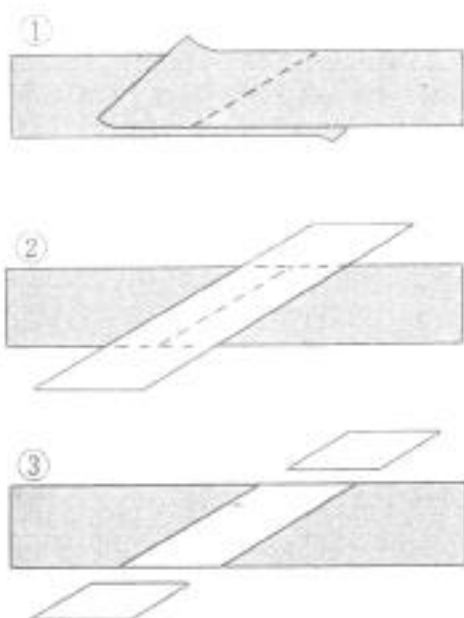


Fig. 23

10- TAPE SPLICING AND EDITING

Cut tape diagonally with an overlap so that the ends are lined up (cutting tape on diagonal eliminates detection of the splice in recording). Cover aligned ends with SPLICING TAPE. Press firmly, exerting pressure to secure ends evenly. Trim off excess splicing tape (Cut into recording tape very slightly as illustrated the by the dotted lines. This eliminates the possibility to a sticky splice). Splicing of tape using scissors requires skillful work. With our specially designed PORTABLE SPLICER, splicing can be done very smoothly.

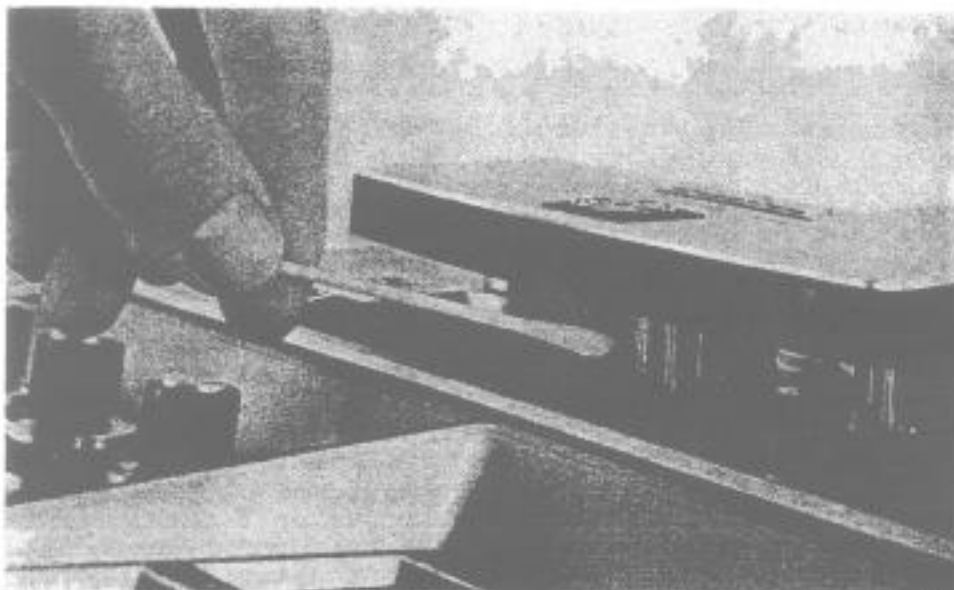


Fig. 24

11- HEAD CLEANING

Tape Oxide/Dust Deposits Cause 90% of Tape Recording Failures

For quality performance it is imperative that tape recorder heads be kept clean at all times. Dust and magnetic particles from the tape tend to deposit on the heads after prolonged use of the recorder. This results in poor head-to-tape contact deteriorating sound quality and sensitivity. Such dust causes drastic drops in recording/playback levels and nullifies high quality sound.

Make it a rule to clean the heads every time you use your recorder. AKAI's Head cleaning kit model HC-500 is recommended for removing foreign matter deposited on the heads.

EXAMPLE



CLEAN HEAD

FREQUENCY RESPONSE CURVE



DUSTY HEAD



Fig. 25

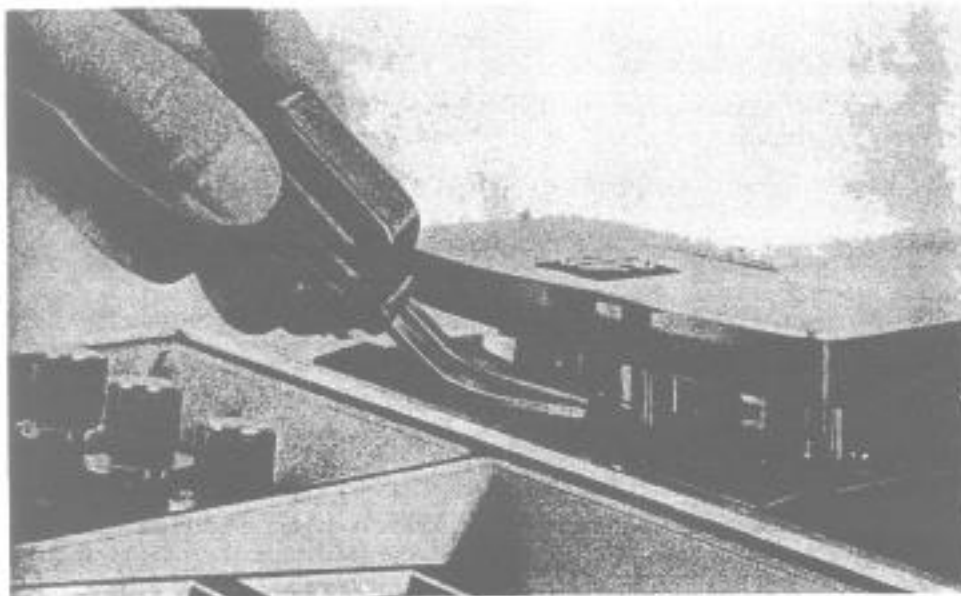


Fig. 26

12- HEAD DEMAGNETIZING

Normally the steel pole pieces which form a part of the Recording and Playback Heads become slightly magnetized. The effect of slight head magnetization is that it partially erases the tape, especially at high frequencies. Generally, this condition can be detected by the loss of high frequency response which cannot be corrected through head alignment. Severe magnetization (which may be caused by using magnetized tools in the vicinity of the heads) will result in noise or considerable distortion in addition to the loss of high frequency response. Although Model 1730D-SS already has a built-in head demagnetizing circuit, it is recommended that head demagnetization be performed periodically. This can be accomplished by touching the head lightly with the demagnetizer and making several small circular motions over all heads surface areas as well as the head housing.

NOTE: To avoid scratching the head surface, we suggest that you cover both prongs of the head demagnetizer with a sort of masking tape.

13- TAPE ERASING

Any signals previously recorded on the tape will be automatically erased as a new recording takes place. For erasing only, load, tape and set recorder to recording mode. Model 1730D-SS is equipped with separate 2-channel and 4-channel erase heads. For full track erase, set STEREO TAPE SELECTOR to "4-CH" position and for 2-channel erase, set to "2-CH" position. No plugs should be connected to the line input jacks or microphone jacks. For quick and complete erasing, the use of a bulk tape eraser is recommended.

14- TROUBLE SHOOTING CHART

The conditions listed below do not indicate mechanical failure of your unit. If your machine exhibits any of these conditions, check for trouble as indicated.

Loss of sensitivity and tone quality	<ul style="list-style-type: none">• Dirty Erase Head This prevents pre-recorded material from being completely erased.• Dust adhering to Recording Head For head cleaning instructions, see "HEAD CLEANING" procedure.• Magnetized Head For demagnetizing instructions, see "HEAD DEMAGNETIZING" procedure.• AC Power Voltage lower than the Voltage to which your machine is adjusted.
Irregularity of tape transport	<ul style="list-style-type: none">• Grime adhering to heads• Oil on capstan.• Sticky or dirty tape surface.• Bent Take-Up Reel.
Will not record	<ul style="list-style-type: none">• Check position of controls and plugs of both Model 1730D-SS and external Source.

Notes:

1. Your machine requires constant voltage for optimum performance.
2. If the sound sources are so far away from the microphones that the recording level controls must be turned up to maximum, some hum or noise will inevitably be recorded. A test recording is recommended before attempting a final recording.
3. Should there be any problem with your machine, please take it to your nearest authorized agent or inquire at our Service Dept. in Tokyo, Japan.

15- LUBRICATION

Although the motor of Model 1730D-SS is sufficiently oiled for prolonged use, for maximum service and optimum performance, take your machine to your local authorized AKAI agent for occasional lubrication.

III. ACCESSORIES

1-STANDARD ACCESSORIES

7" 4-channel Stereo Demonstration Tape	1
7" Empty Reel	1
Connection Cord (DR-111)	2
Spare Fuses	2
Operator's Manual	1

CEE, CSA, and UL Standard models are not included with spare fuses.

2-OPTIONAL ACCESSORIES

HEAD DEMAGNETIZER AH-8



(except for CSA Standard area)

HEAD CLEANING KIT HC-500



STEREO HEADPHONES



ASE-9S

TAPE SPLICER AS-3



DYNAMIC MICROPHONES



(Uni-directional) UM-101



DM-13

CONNECTION CORDS



D-100



RM-130

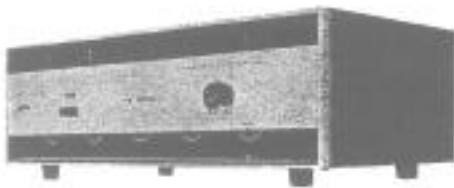


SC-180

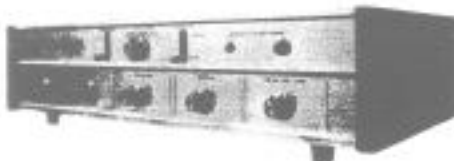
ASE-20



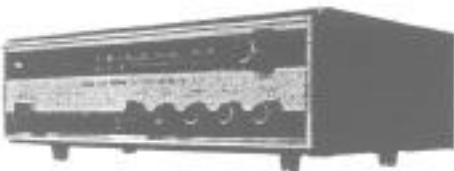
ASE-22



Model AA-6000
Solid State Stereo Pre-Main Amplifier



Model AA-6100
Surround Stereo Pre-Main Amplifier (4ch/2ch)



Model AA-6600
Solid State FM/AM Multiplex Stereo Tuner
Amplifier



Model SW-125
3-Way 3-Speaker System



Model SW-155
4-Way 4-Speaker System